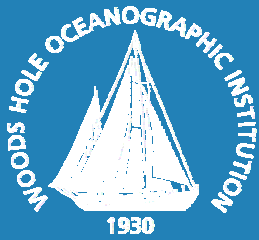


Processes and Products: Two Examples

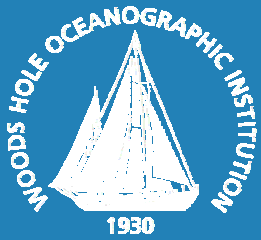
Glen Gawarkiewicz and Chris Linder

Woods Hole Oceanographic Institution



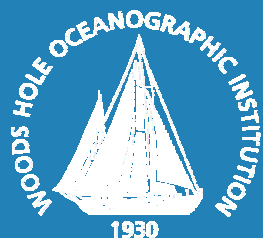
Outline

- **Middle Atlantic Bight Climatology and comparison with MODAS fields**
- **A regional difference in wind-forced frontal response**
- **A South China Sea data assimilation conundrum**



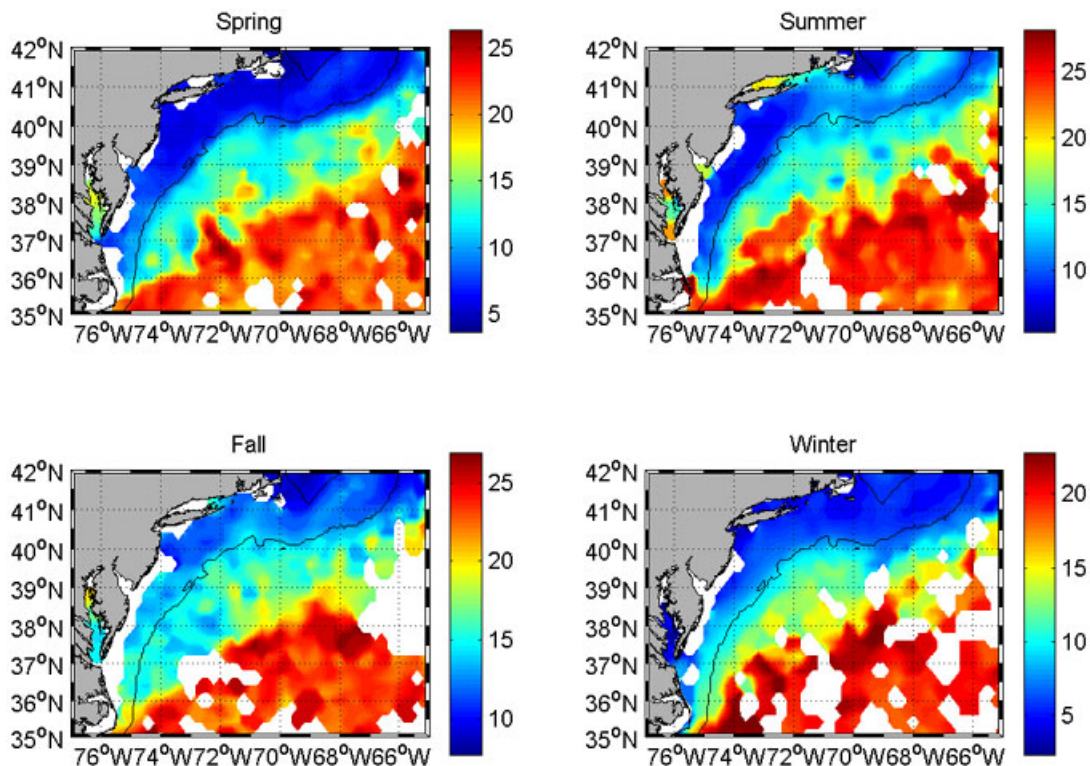
Updated Climatology of MAB

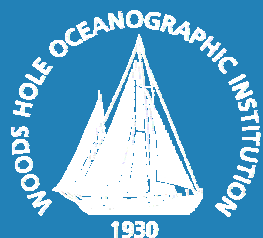
- **Now fully three-dimensional with Hamming window for weighting**
- **Switch from bi-monthly to seasonal temporal averages**
- **Can now look more closely at regional differences within MAB**



Mean Temperature Fields- 40-55 m depth

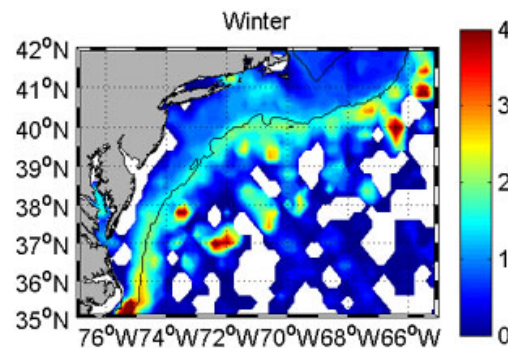
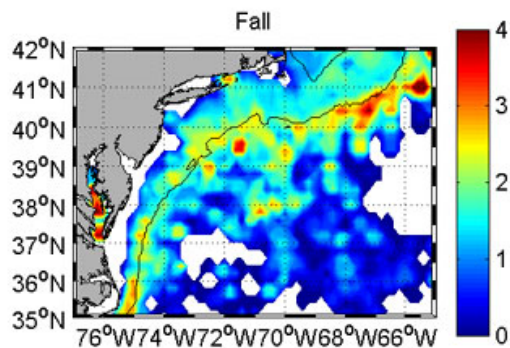
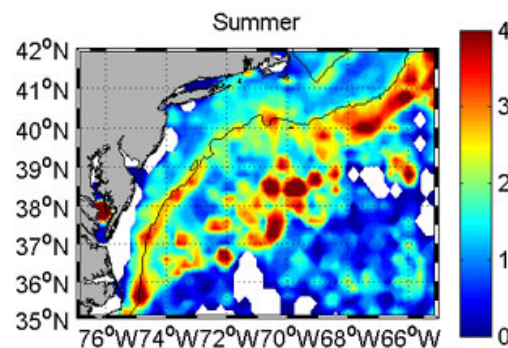
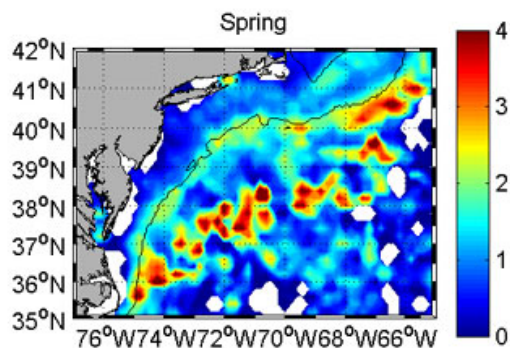
Mean temperature; search radius 35km, from 40m to 55m depth - MAB: NOAA, HB2 & SEEP

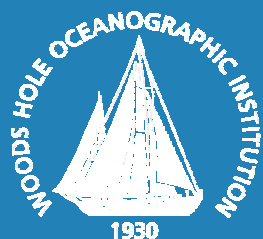




Temperature Std. Dev. Fields- 40-55 m depth

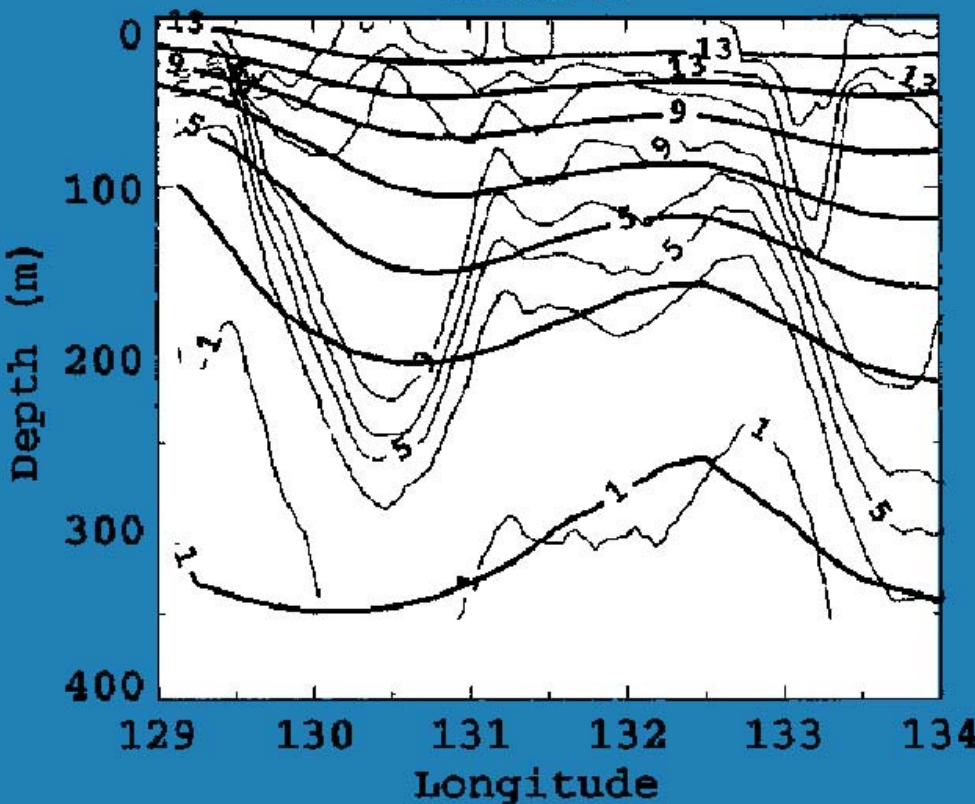
Std temperature; search radius 35km, from 40m to 55m depth - MAB: NOAA, HB2 & SEEP



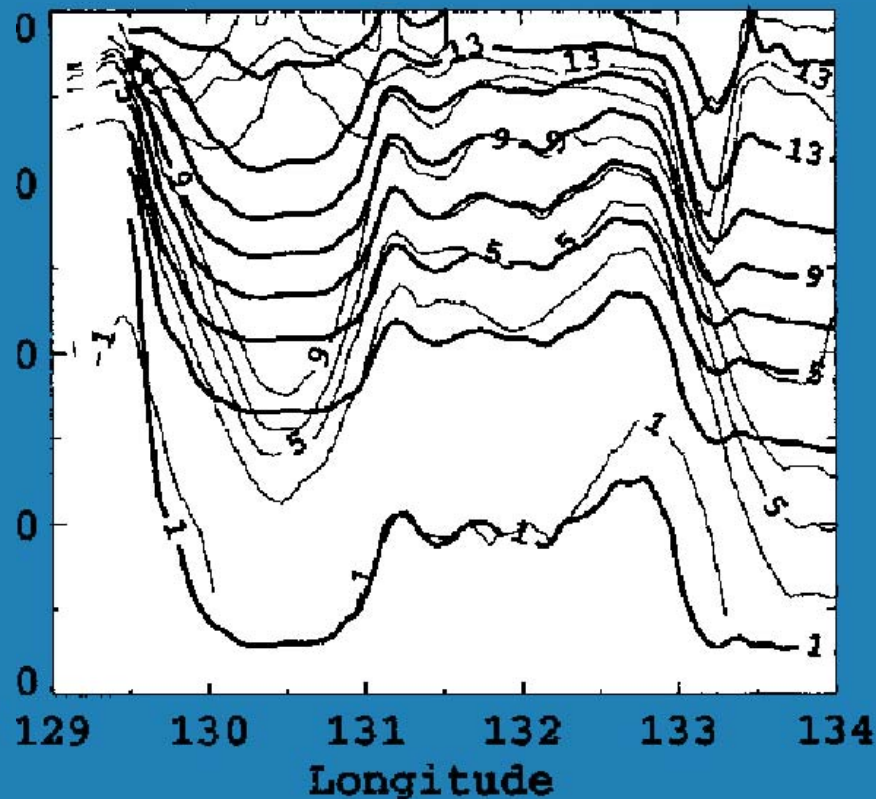


MODAS modes

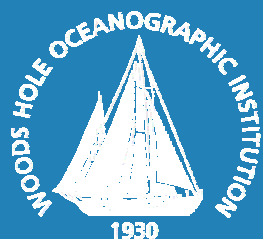
Climatology



Dynamic (SSH/SST)

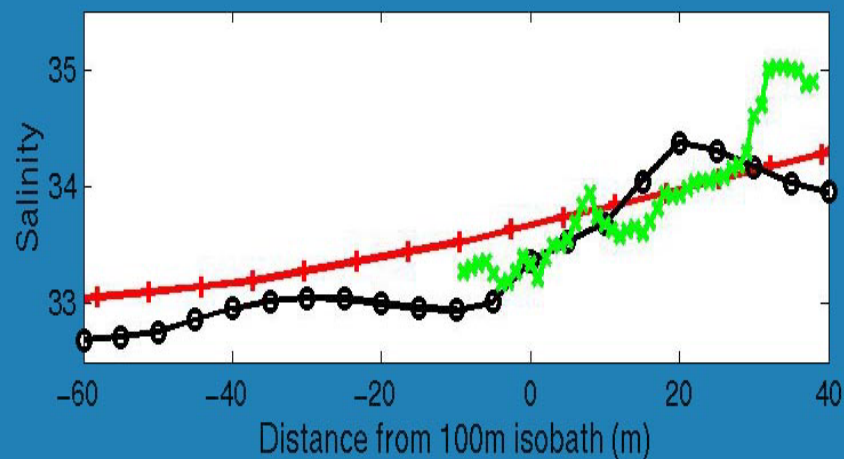
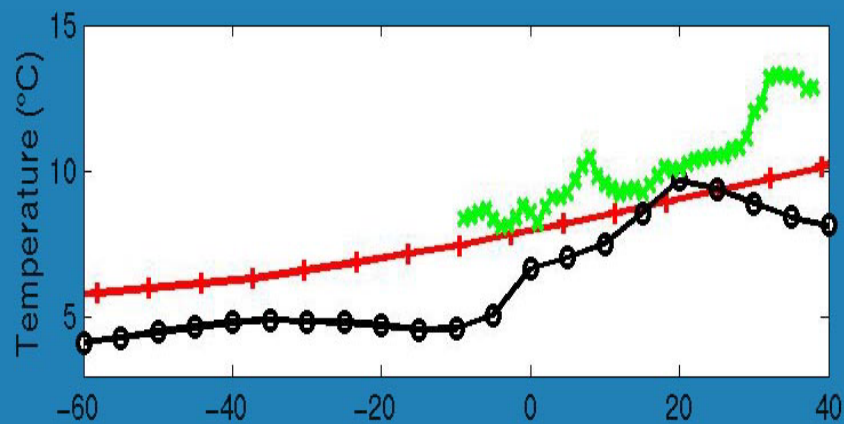


**MODAS/SeaSoar comparison from JES
(from Fox et al., JOAT, 2001)**

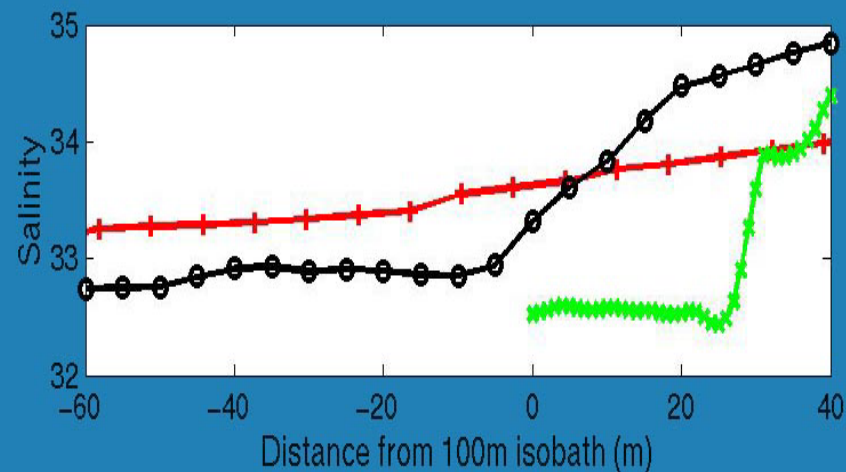
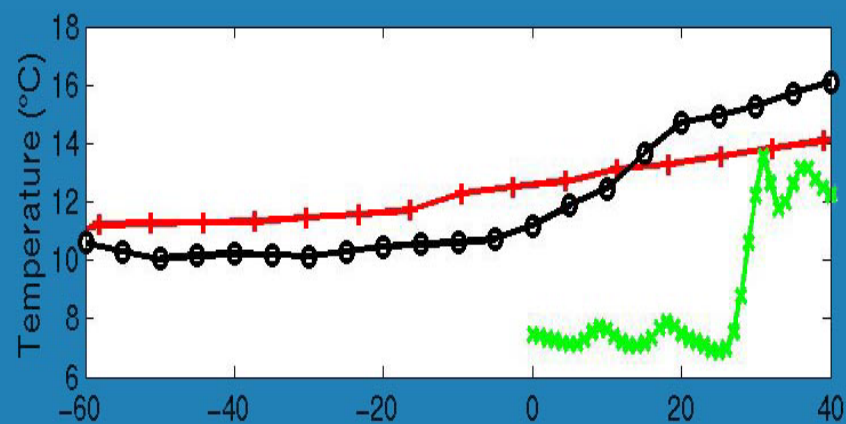


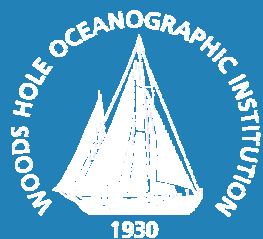
MODAS / Model / PRIMER **(MAB cross-frontal T,S @ 40m)**

Feb/Mar



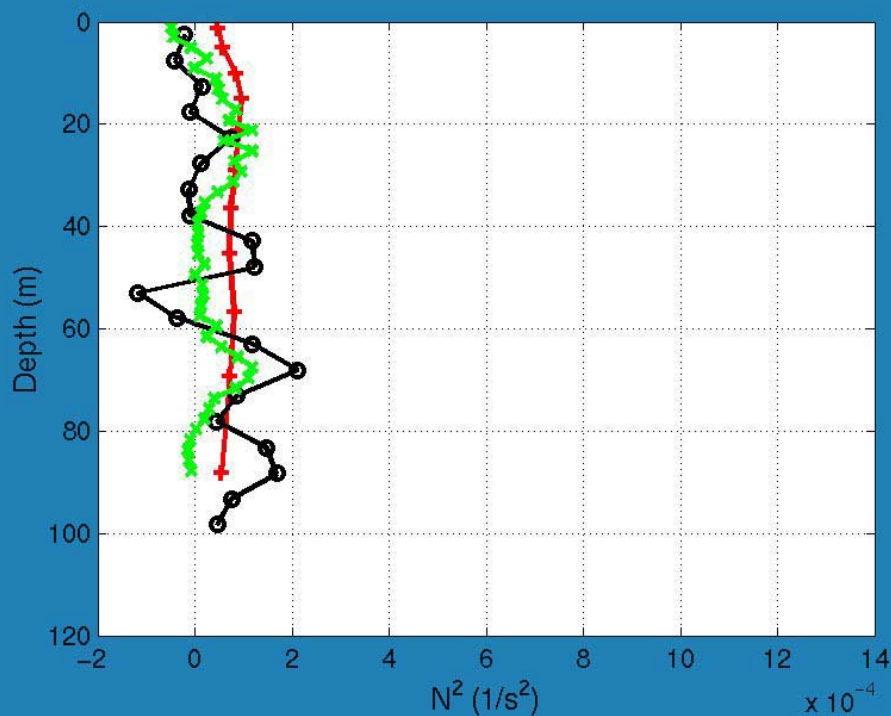
Aug/Sep



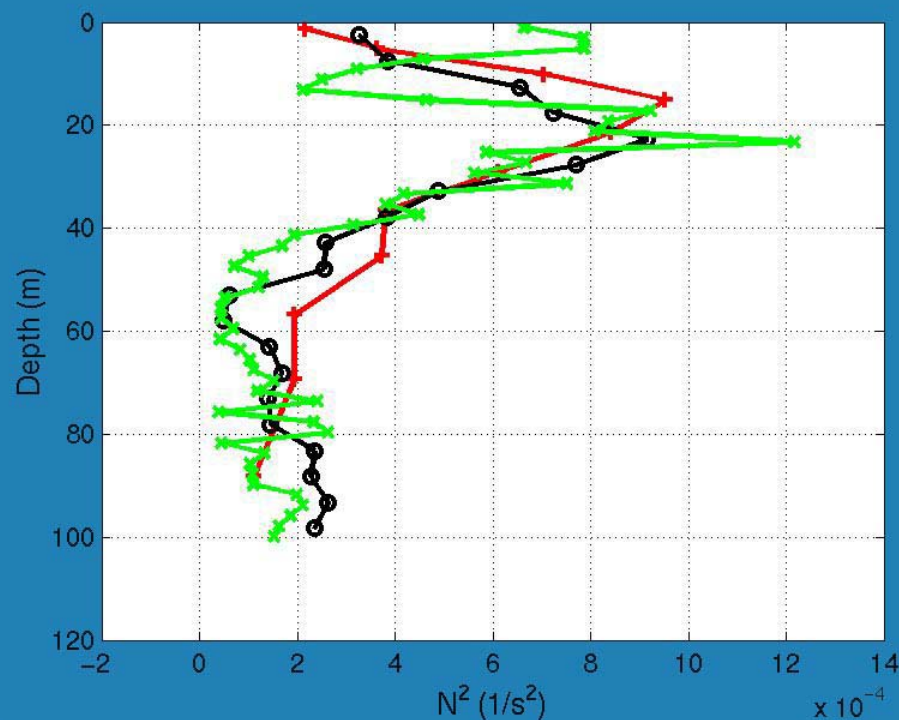


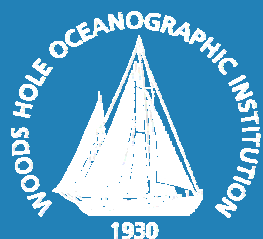
MODAS / **Model** / **PRIMER** (stratification @ 100m isobath)

Feb/Mar



Aug/Sep

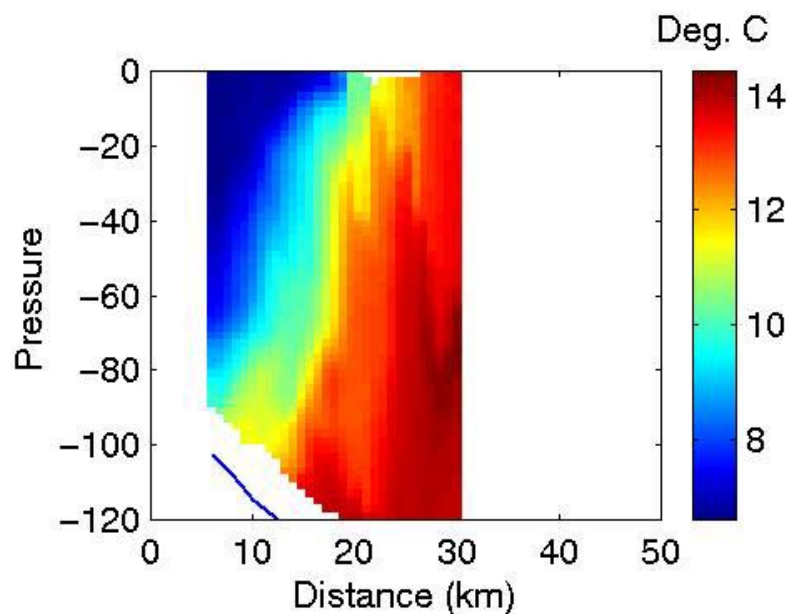




Wind Response- Southern MAB vs New England

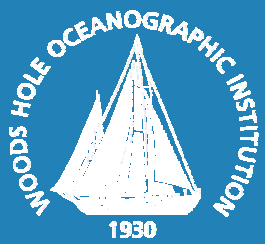
Primer 4 section 2 lon: -71.017 (1997/02/18)

N->S Temperature

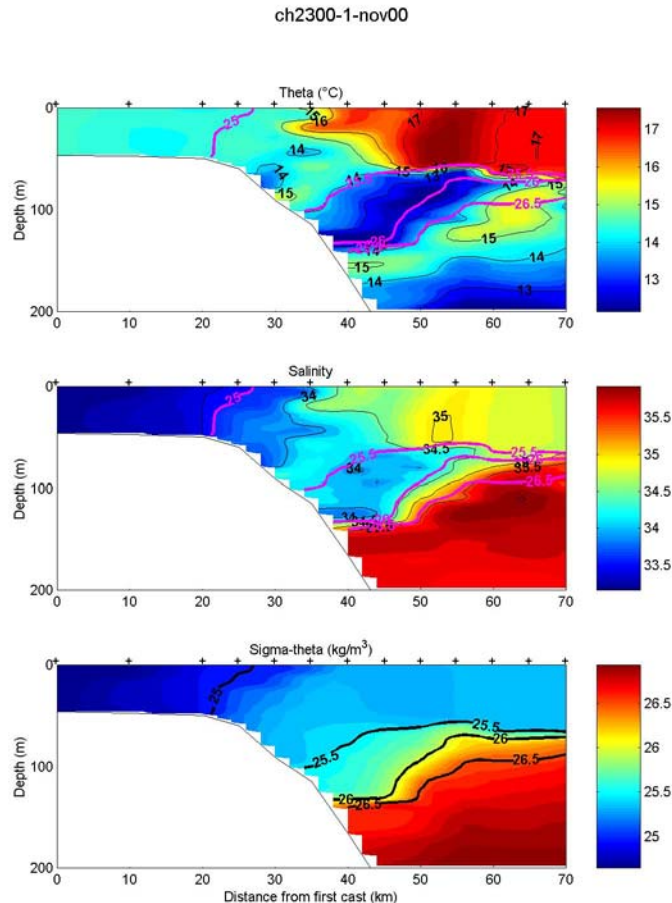


Onshore Ekman
transport

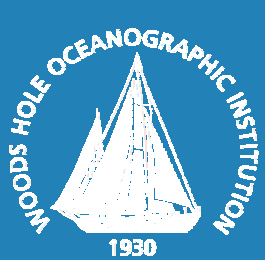
New England-
Wind steepens front



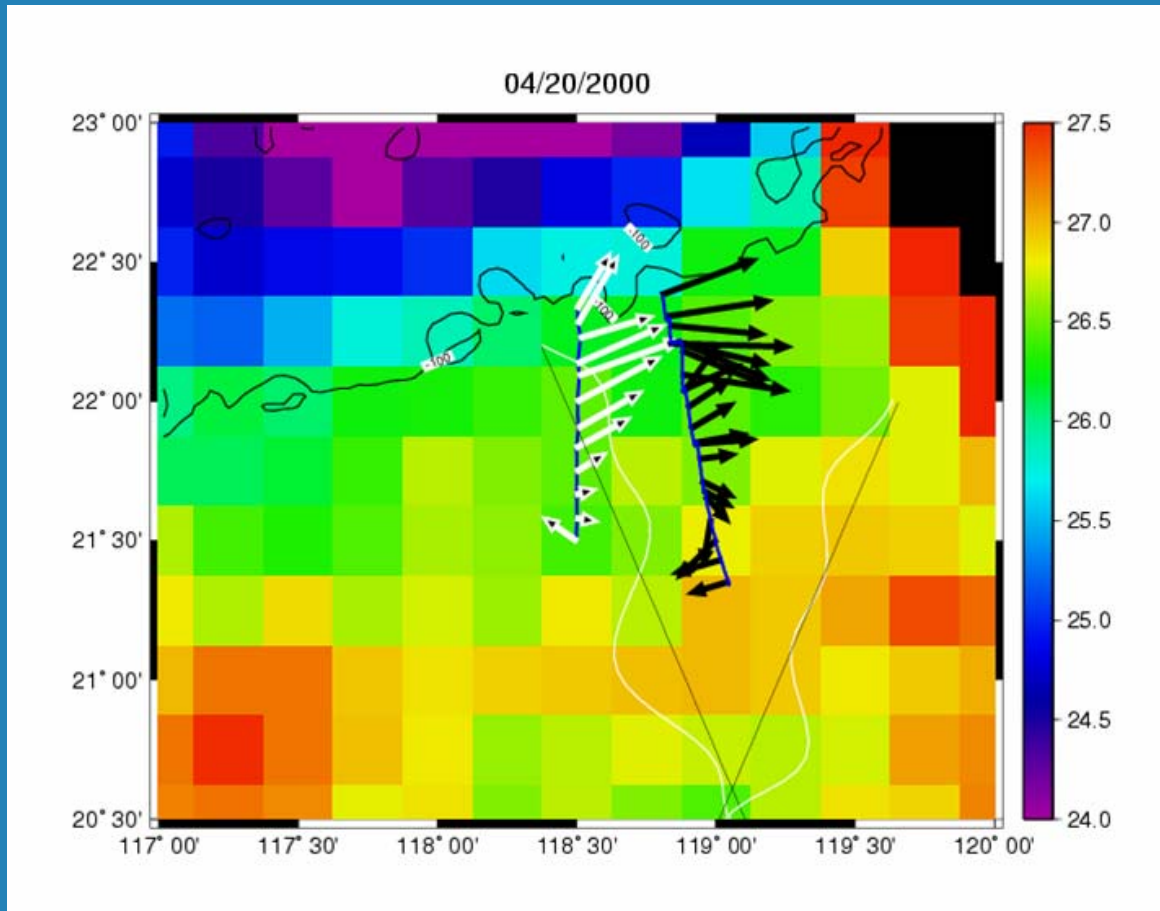
Wind Response- Southern MAB vs New England



Southern MAB-
Warm water blows
over front
Temperature minimum
at shelfbreak

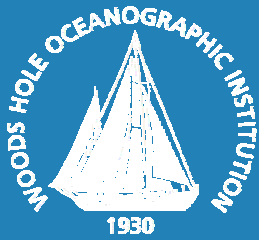


South China Sea- ADCP vs. altimeter



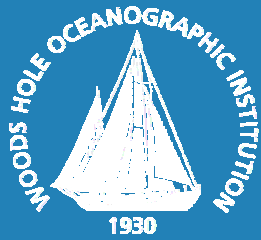
ADCP- 93 cm/s
East

Altimeter-
35 cm/s
East



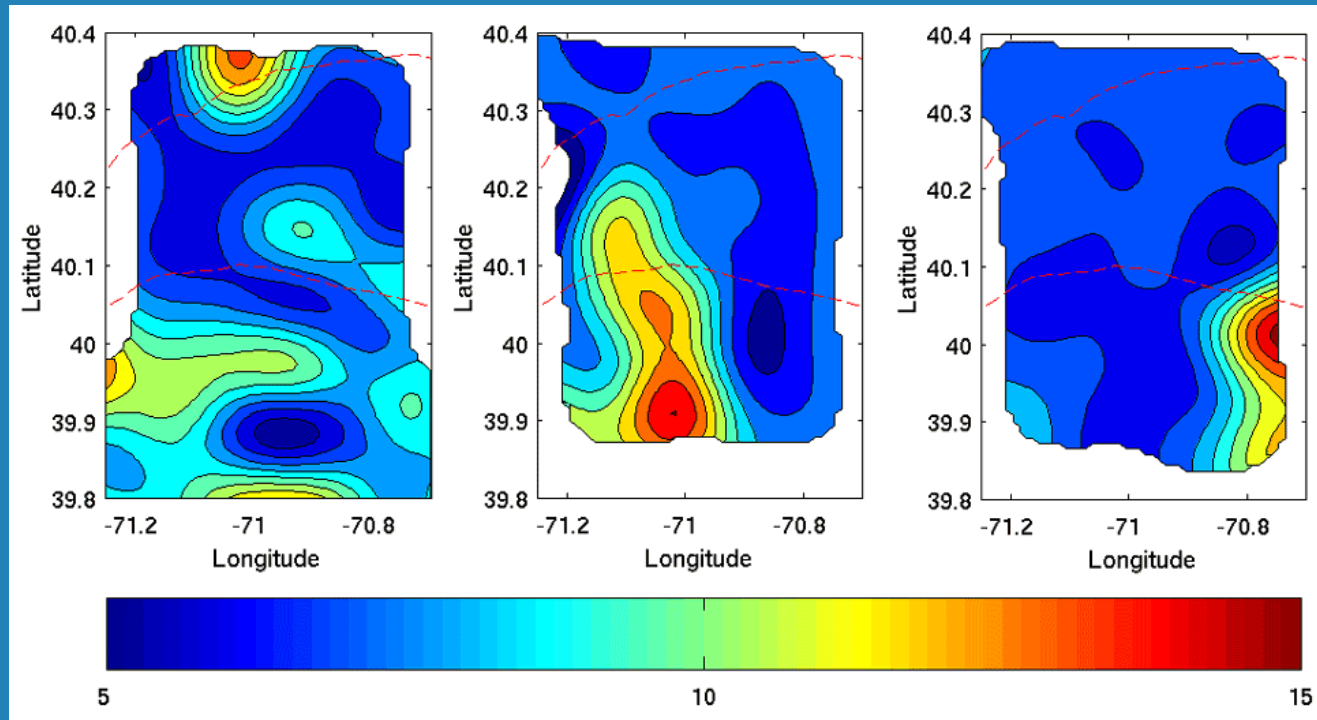
Conclusions

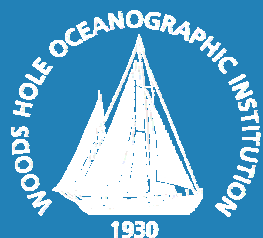
- **Regional “hot spots” can be identified and correlated with oceanographic features**
- **Frontal wind response is dependent on accurately knowing slope temperature field**
- **Data assimilation of altimeter data may substantially reduce kinetic energy of model fields**



Temperature Correlation Scales

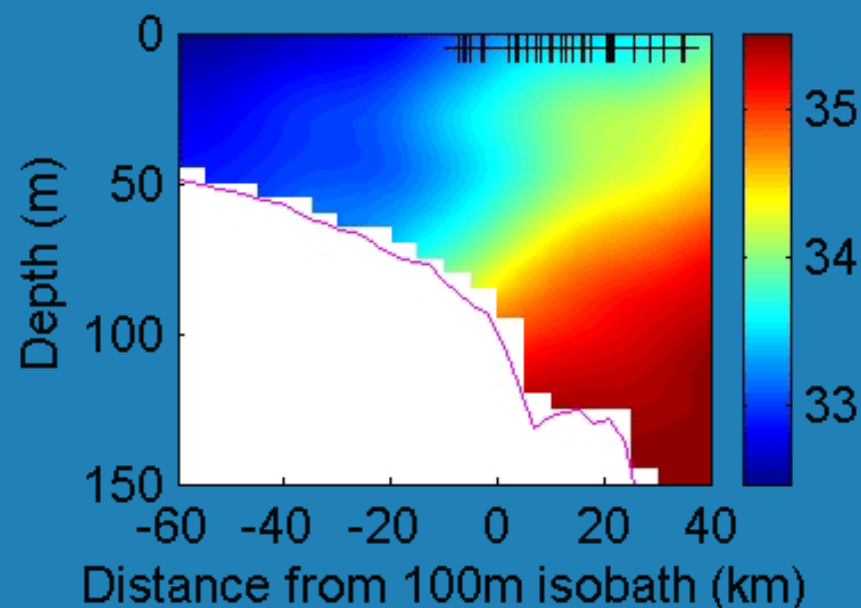
**Shelfbreak PRIMER- Spatial
Correlation Scales- 8 km,
Temporal Scales- 1 Day**





Tursiops positions from D Palka 1998 July-August sighting survey

**Cross-section
mean salinity**



**Planview mean
salinity 40-55m**

